



To: SCAG Transportation Conformity Workgroup

From: Matthew B. Jones, Manager, Environmental Services

Date: 12 May 2006

**Subject: I-15/French Valley Parkway Interchange, Riverside County, California,
District 8 – RIV – 15, KP 9.7/14.5 (PM 6.0/9.0), 432700
PM2.5 Hotspot Transportation Conformity Analysis**

The purpose of this memorandum is to obtain your concurrence that the project listed above is not of air quality concern in relation to the PM2.5 Hotspot Transportation Conformity requirements. The reasoning for this finding is described in the following section. The pages that follow provide background on the project, the project purpose and need, a project description, PM2.5 monitoring data, truck traffic information, and a summary of the traffic study prepared for the project to assist you in concurring with this finding.

Proposed Finding That Project is Not of Air Quality Concern

The proposed project is located within a federal PM2.5 non-attainment area. Therefore, per 40 CFR Part 93 a PM2.5 hotspot analysis is required for conformity purposes. However, the EPA does not require a hot-spot analysis, qualitative or quantitative, for projects that are not listed in §93.123(b)(1) as an air quality concern. The project does not qualify as a project of air quality concern because the project would not result in a significant increase in the number of diesel busses and diesel trucks that would utilize the facility. The project proposes the addition of a new interchange at French Valley Parkway on Interstate 15 (I-15) between the existing Winchester Road Interchange (SR-79) and the Interstate 15/Interstate 215 (I-215) Junction in an effort to relieve traffic congestion and improve safety and operational efficiency within the project limits. A collector distributor (C/D) system would be constructed parallel to I-15. In the southbound direction, the C/D system would start north of the I-15/I-215 confluence and provide access to both French Valley Parkway and Winchester Road. In the northbound direction this system would start at Winchester Road, and provide one lane direct access from the mainline to French Valley Parkway. The project would primarily serve to provide access to I-15 and I-215 for automobiles from the residential communities of Temecula and Murietta which have minimal commercial and industrial uses and therefore, generate minimal truck trips. Further, overall traffic volumes are expected to be the same with the project or under the No Action alternative. Diesel trucks traveling through the project area on I-15 and I-215 would not be expected to increase significantly as a result of the project. Further, the project would reduce congestion and improve flow on I-15 and I-215 resulting in higher travel speeds. Diesel trucks produce fewer PM2.5 emissions at higher speeds and the project would be expected reduce emissions from individual diesel trucks relative to for conditions without the project. Therefore, the proposed project meets the Clean Air Act requirements and 40 CFR 93.116 without any explicit hot-spot analysis and the proposed project would not create a new, or worsen an existing, PM2.5 violation.

Project Background

I-15 is a north-south freeway that provides regional access to the cities of Temecula and Murrieta as well as adjacent portions of unincorporated Riverside County. To the south, I-15 provides access to the San Diego metropolitan area, which is a large employment center for Riverside County residents. To the north, I-15 provides access to employment centers in the city of Corona, Orange County, and the Los Angeles metropolitan area, via State Route 60, State Route 91, and Interstate 10. Employment centers in the cities of Riverside and San Bernardino can also be accessed via I-15, which has a junction with I-215 in the city of Murrieta. Within the project limits, I-15 is designated as eight-lane divided urban freeway with four 3.66 m lanes in each direction.

Winchester Road is a major north-south arterial through western Riverside County that connects the cities of Temecula and Murrieta to the cities of Hemet and San Jacinto to the north. In the City of Temecula, Winchester Road turns to the west and functions as an east-west arterial. Winchester Road is designated as an urban arterial in the City of Temecula Circulation Plan.

The proposed French Valley Parkway interchange would be located approximately 0.9 kilometers (0.6 miles) north of the existing I-15/Winchester Road interchange, which serves a large volume of regional traffic. The Winchester Road interchange is located about 2.6 kilometers (1.6 miles) north of Rancho California Road and 3.4 kilometers (2.1 miles) south of the I-15/I-215 Junction. The Winchester Road interchange is a partial cloverleaf design with loop entrance ramps in the northwest and southeast quadrants. The overcrossing accommodates six through lanes.

Within the cities of Temecula and Murrieta, a series of east-west arterials convey traffic among residential, commercial, and industrial areas of the cities. The primary residential areas of the cities are located east of I-15, while the primary industrial areas are located west of the freeway. Commercial areas, while distributed throughout the cities, are concentrated near both I-15 and I-215.

French Valley Parkway is a proposed 6-lane roadway in the city of Temecula. As such, it is designated as an urban arterial in the City of Temecula Circulation Plan. French Valley Parkway would be an extension of an existing roadway, Cherry Street, which would extend from Jefferson Avenue west of I-15 to Margarita Road east of I-15 (Moffatt & Nichol Engineers, 2004).

Purpose and Need

The Route Concept Fact Sheet for I-15 (California Department of Transportation, District 8, March 1999) projects that daily traffic volume on the segment of I-15 between Winchester Road and the I-215 junction will reach 193,000 vehicles by 2015, up from 100,000 in the base year of 1996. Year 2002 daily volume on this segment was 155,000 vehicles. If the rate of growth observed between 1996 and 2002 continues, the daily volume of 193,000 vehicles that was projected for 2015 would be reached in 2006.

Field observations indicate that there are two existing operational deficiencies in the project area. During the a.m. peak hour, the queue on the southbound off-ramp at Winchester Road extends well back onto the freeway mainline, sometimes as far as the I-15/I-215 junction. This first

deficiency results from the inability of the ramp terminus intersection to process the number of vehicles delivered to it by the freeway off-ramp. Winchester Road simply cannot accommodate the volume of traffic seeking access to and from the freeway in the project vicinity. The second operational deficiency occurs in the northbound direction during the p.m. peak hour, where the merge from the Winchester Road direct on-ramp breaks down and causes queuing back to the ramp terminus intersection. The Proposed Project would address these deficiencies and, in so doing, improve safety and operational efficiency in the study area.

Proposed Project

To address the purpose and need, the Proposed Project would include the following components:

- Construction of a new interchange on I-15 at French Valley Parkway approximately 0.9 kilometers north of the existing Winchester Road interchange.
- Upgrades to the existing Winchester Road/I-15 Interchange
- Construction of collector/distributor lanes on both sides of mainline I-15 between the existing Winchester Road Interchange and the I-15/I-215 Junction
- Upgrading the I-15 median shoulders to current standards
- Establishment, realignment and widening of the local surface street system to support the new interchange and relieve the I-15 traffic as much as possible

The project limits are from 0.9 km south of the Winchester Road Interchange to 1.5 km north of the I-15/I-215 Junction (Exhibit 2).

The Proposed Project would include a partial cloverleaf interchange at French Valley Parkway with loop on ramps in the north-west and south-east quadrants and direct onramps in the south-west and north-east quadrants, similar to the existing Winchester Road interchange configuration. French Valley Parkway is proposed to be an overcrossing. The overcrossing would be 37.2 m (122 feet) wide to accommodate a 4.2 m median, two 4.3 m lanes, four 3.7 m lanes, 3.0 m shoulders, and a 1.8 m sidewalk on both sides.

The ramps between French Valley Parkway and Winchester Road would be braided in both northbound and southbound directions due to insufficient weaving distances and therefore new structures over the Santa Gertrudis Creek are required. All ramps are proposed to have two lanes with provisions for ramp metering and CHP enforcement areas.

In order to relieve mainline congestion in this area, a collector/distributor (C/D) system is being proposed. This system would remove large numbers of commuters who are entering or exiting the freeway in this area from the mainline and provide better levels of service to travelers who are traveling through the area.

In the southbound direction the collector/distributor system would start north of the I- 15/I-215 confluence and provide access to both French Valley Parkway and Winchester Road. The C/D

roadway is separated from mainline I-15 by type 60 concrete barrier. Two mainline lanes join a single lane from the southbound I-215 connector for three 3.6 meter lanes with 3.0 meter shoulders up to French Valley Parkway and two 3.6 meter lanes and 3.0 meter shoulders between French Valley Parkway and Winchester Road.

In the northbound direction this system will start at Winchester Road and provide one lane direct access from mainline to French Valley Parkway. The loop on ramp from Winchester Road in combination with the direct on will make up a two lane C/D which will collect northbound traffic from French Valley Parkway and provide direct access to either the northbound I-215 or the northbound I-15. In both cases the lane tapers will run out prior to the existing Murrieta Hot Springs off ramps.

At Winchester Road the southbound off ramp is proposed to be reconfigured to accommodate widening of the southbound loop on ramp. The southbound loop on ramp is proposed to be widened from one to two lanes. The southbound on ramp will not be widened and it will merge with the southbound C/D prior to joining mainline I-15. The northbound off ramp remains unchanged and the northbound on ramps, both the loop and the direct on, are widened from one to two lanes.

The weaving distance between the French Valley Parkway Interchange and the I-15/I-215 junction is 1,050 meters in the northbound direction and 987 meters in the southbound direction (Moffatt & Nichol Engineers, 2004).

Monitored PM2.5 Levels

The South Coast Air Quality Management District (SCAQMD) maintains a network of ambient air monitoring stations throughout the South Coast Air Basin (SCAB). The project site is located in Source-Receptor Area 26 ("Temecula Valley"), which currently has no ambient monitoring station used by the SCAQMD. The nearest PM2.5 monitoring station is the Riverside-Magnolia Station, in the City of Riverside (approximately 30 miles north of the project site). This monitor is located approximately one half mile from SR-91 in a heavily developed area of Riverside. The San Diego Air Pollution Control District operates a PM2.5 monitor in Escondido located approximately 30 miles south of the project site. This station is located approximately 1.5 miles north of I-15. Tables 1 through 4 summarize the monitoring data from the last four years at these two stations obtained from the California Air Resources Board (CARB) Air Quality Data Statistics web site. Note that it does not appear that the data from the Escondido station for 2005 is complete at this time.

Tables 1 and 2 present the monitored 24-hour average PM2.5 concentrations at the Riverside-Magnolia and Escondido monitoring stations. The four highest 24-hour concentrations are presented. Concentrations exceeding the $65 \mu\text{g}/\text{m}^3$ standard are shown in bold. However, the national PM2.5 standard is in terms of the average of the 98th percentile level from the preceding three years. These values are presented at the bottom of the tables. The tables show that the 24-hour PM2.5 standard is not exceeded at either station.

Table 1
Riverside-Magnolia Four Highest 24-Hour Average PM2.5 Measurements ($\mu\text{g}/\text{m}^3$)

	2002		2003		2004		2005	
	Date	Level	Date	Date	Level	Level	Date	Level
First High:	Apr 2	75.5	Oct 9	73.3	Mar 19	93.8	Oct 22	94.9
Second High:	Mar 30	69.6	Mar 13	59.5	Mar 22	67.1	Nov 6	49.1
Third High:	Oct 14	63.7	Sep 30	56.2	Apr 9	53.7	Nov 12	41.0
Fourth High:	Jan 2	61.8	Oct 27	55.5	Jul 5	51.0	Mar 11	39.4
98th Percentile								
1-Year		63.7		56.2		53.7		--
3-Year Avg.		65		62		58		--

-- Data Not Reported

Source: CARB Air Quality Data Statistics web site www.arb.ca.gov/adam/ accessed 5/10/06

Table 2
Escondido Four Highest 24-Hour Average PM2.5 Measurements ($\mu\text{g}/\text{m}^3$)

	2002		2003		2004		2005	
	Date	Level	Date	Date	Level	Level	Date	Level
First High:	Jan 1	53.6	Oct 27	69.2	Jan 1	67.3	Jan 1	43.1
Second High:	Dec 25	44.6	Dec 31	37.9	Dec 25	48.7	Mar 9	30.1
Third High:	Jan 2	43.5	Dec 5	35.8	Jan 18	41.1	Mar 10	26.6
Fourth High:	Jan 3	40.6	Jan 23	35.1	Mar 21	40.5	Jan 22	26.1
98th Percentile								
1-Year		--		33.9		37.4		--
3-Year Avg.		--		--		--		--

-- Data Not Reported

Source: CARB Air Quality Data Statistics web site www.arb.ca.gov/adam/ accessed 5/10/06

Tables 3 and 4 present the annual average monitored PM2.5 levels at the Riverside-Magnolia and Escondido monitoring stations. The federal ambient air quality standard is based on the average of the three previous years. The tables show that the Riverside-Magnolia station's average from the three past years is $20 \mu\text{g}/\text{m}^3$ which exceeds the $15 \mu\text{g}/\text{m}^3$ standard. However, the monitoring data shows a definite downward trend in the annual average PM2.5 concentrations at the station. The data for the Escondido station shows that the 3-year average ending in 2003 was at the $15 \mu\text{g}/\text{m}^3$ standard and the average ending in 2004 was below the standard at $14 \mu\text{g}/\text{m}^3$. At this time, the 2005 annual average is not yet available for the Escondido station.

Table 3
Riverside-Magnolia Annual Average PM2.5 Measurements ($\mu\text{g}/\text{m}^3$)

	2002	2003	2004	2005
National Annual Average:	27.1	22.6	20.8	18.0
National 3-Year Average:	26	25	23	20

-- Data Not Reported

Source: CARB Air Quality Data Statistics web site www.arb.ca.gov/adam/ accessed 5/10/06

Table 4
Escondido Annual Average PM2.5 Measurements ($\mu\text{g}/\text{m}^3$)

	2002	2003	2004	2005
National Annual Average:	16.0	14.2	14.1	--
National 3-Year Average:	16	15	14	--

-- Data Not Reported

Source: CARB Air Quality Data Statistics web site www.arb.ca.gov/adam/ accessed 5/10/06

Based on the surrounding conditions one would expect the PM2.5 concentrations in the vicinity of the project to be somewhere between the Riverside-Magnolia station and the Escondido station and somewhat more similar to the Escondido station. Therefore, the area around the project site likely complies with the 24-hour standard while there may be a few periods exceeding $65 \mu\text{g}/\text{m}^3$ each year. The annual average PM2.5 concentrations in the project area are likely very near the $15 \mu\text{g}/\text{m}^3$ standard. But based on the Riverside-Magnolia and Escondido data it would be difficult to discern if the project area is just above or just below the standard.

Existing Traffic Volumes and Truck Percentages

Table 5 presents existing average daily traffic volumes, truck percentages and average daily truck volume for I-15 and I-215 in the project area from Caltrans data. This data shows that the truck volume of I-15 exceeds 10,000 trucks per day on I-15 south of I-215. The 10,000 trucks per day number is important because if the truck volume were less than this, the facility would not be considered to have a significant number of diesel vehicles and the facility would not be considered to be of air quality concern. The traffic study prepared for the project indicates that traffic volumes on I-15 would be expected to increase by an average of approximately 45% by 2010 and by approximately 122% by 2030. Traffic volumes on I-215 would be expected to increase by an average of approximately 68% in 2010 and an average of approximately 160% in 2030. While much of the increase in traffic would be comprised of automobiles due to planned residential developments in the area, it is likely in the future that both I-15 and I-215 would be considered facilities of air quality concern, in terms of PM2.5. Note that this does not mean that the project is of air quality concern as the project would not be expected to significantly increase the number of diesel busses and diesel trucks. As noted below the traffic study stated that the projected traffic volumes on these highways would be the same with the proposed project and under the No Action Alternative because the same growth assumptions apply.

Table 5
Existing Traffic Volumes and Truck Percentages

Segment	Total AADT	Percent Trucks		Total	Truck AADT
		3-4 Axel	5 Axel		
I-15					
South of SR-79	149,000	2.6%	4.4%	7.1%	10,505
North of SR-79	162,000	2.5%	4.1%	6.6%	10,643
South of I-215	190,000	2.1%	3.5%	5.6%	10,545
North of I-215	115,000	4.1%	4.3%	8.4%	9,659
I-215					
North of I-15	59,000	3.1%	6.1%	9.2%	5,428
South of Palm Avenue	49,000	3.7%	5.4%	9.1%	4,459

Source: 2004 Annual Average Daily Truck Traffic on California State Highways, Caltrans Traffic and Vehicle Data Systems Unit (<http://www.dot.ca.gov/hq/traffops/saferesr/trafdata/>)

Project Traffic Study Summary

The traffic analysis prepared for the project, *Traffic Operations Analysis Report* (LSA Associates, October 2004), demonstrates that the proposed project is designed to improve traffic flow both on the arterial highways, as well as the freeway when compared to the No Action Alternative. By separating those trips wanting to access the local circulation system, the freeway operation is improved. This in turn improves local circulation for the businesses and residents in the area.

LSA Associates' field observations concluded that there are two existing operational deficiencies in the project area. These are:

- During the a.m. peak hour, the queue on the southbound off-ramp at Winchester Road extends well back onto the freeway mainline, sometimes as far as the I-15/I-215 junction. This is the result of the fact that the ramp terminus intersection cannot accommodate the number of vehicles fed to it by the freeway off-ramp.
- In the northbound direction during the p.m. peak hour, the merge from the Winchester Road direct on-ramp breaks down and causes queuing back to the ramp terminus intersection. Because there is a heavy proportion of mainline traffic concentrated in the right lanes, there are inadequate gaps for on-ramp traffic, which causes the merge area to fail.

As the area experiences growth, the future travel demand will decrease the LOS on I-15. The projected traffic volumes would be the same both with the proposed project and the No Action Alternative because the same growth assumptions would apply. However, the level of service would change with the proposed project because it would increase capacity and the efficiency of the existing roadway. This would be done by separating those who want access to the local arterial highway system from the regular traffic lanes. Two timeframes were evaluated in the traffic study: 2010, which represents approximate completion of the proposed improvements; and 2030, which is the long-range scenario. Table 6, below, provides a comparison of the number of deficient arterial and ramp locations for the proposed project and No Action Alternative for the future year conditions. The table shows that the project would result in

substantially fewer deficiencies than the No Action Alternative and improve traffic flow in the project area.

Table 6
Comparison of LOS Deficiencies with Propose Project and with No Action

Time of Day and Roadway Segment	Number of Deficiencies	
	Proposed Project	No Action Alternative
Arterial Highways 2010		
AM	1	2
PM	3	5
Arterial Highways 2030		
AM	5	6
PM	9	10
Freeway Ramps 2010		
AM	2	3
PM	8	17
Freeway Ramps 2030		
AM	13	18
PM	33	45

Source: BonTerra Consulting, using data from LSA Associates, 2004